

Application No. 10/681,341
Reply to the Office action of December 3, 2004

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application.

Listing of Claims:

1. (currently amended) A one-piece blade for a turbine section of a gas turbine engine, the blade comprising a root, an airfoil and a shroud, wherein the shroud extends generally perpendicularly from a tip of the airfoil and is defined by a pair of opposed bearing faces integrally formed with said shroud and a pair of opposed non-bearing faces, the bearing faces each having a contact portion adapted to contact a shroud of an adjacent blade, the shroud having a portion extending between the contact portion of the bearing faces and the shroud having a substantially constant nominal thickness, and the bearing faces having a substantially constant face thickness across the contact portion, the face thickness being greater than the nominal thickness, the transition between the face thickness of the bearing faces and the nominal thickness of said portion being substantially discontinuous.
2. (original) A one-piece blade according to claim 1 wherein the shroud is generally planar.
3. (original) A one-piece blade according to claim 1 wherein the bearing faces are generally planar.
4. (original) A one-piece blade according to claim 1 wherein the contact portions are generally at an angle from a plane perpendicular to the airfoil.
5. (original) A one-piece blade according to claim 1 further comprising a pair of knife edges extending from the shroud, each of the knife edges extending across an outer surface of the shroud from one bearing face to the other.
6. (original) A one-piece blade according to claim 5, wherein the shroud is generally prismatic but for discontinuities at the opposed bearing faces and but for the knife edges.

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7. (currently amended) A blade for a turbine section of a gas turbine engine, the blade comprising:

an airfoil portion extending from a root portion to a tip portion; and
a shroud portion extending laterally from the airfoil portion, the shroud portion having a body portion having a substantially constant thickness and a pair of opposed bearing faces integrally formed with said body portion each having contact portions adapted to matingly contact a bearing face contact portion of a shroud portion of an adjacent turbine blade, wherein the body portion is has a generally planar portion extending between the opposed bearing faces and has ~~as~~having the constant thickness, at least one of the opposed bearing faces having a discontinuous increase in thickness relative to the constant thickness immediately adjacent the contact portion of the at least one of the opposed bearing faces to thereby provide substantially all of the contact portion of said at least one bearing face with an increased surface area associated with said increased thickness, and wherein said increased surface area is adapted to lower contact stresses arising from contact with at least one mating bearing face of said adjacent turbine blades.

8. (original) A blade according to claim 7 wherein the shroud portion extends generally perpendicularly to the airfoil.

9. (original) A blade according to claim 7 wherein the shroud portion extends from a tip portion of the airfoil.

10. (original) A blade according to claim 7 wherein the increase in thickness of the shroud portion is discontinuous.

11. (original) A blade according to claim 7 wherein the shroud portion is generally planar.

12. (original) A blade according to claim 7 wherein the at least one bearing face is generally planar.

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13. (original) A blade according to claim 7 wherein the at least one bearing face is generally at an angle to a plane perpendicular to the airfoil portion.

14. (original) A blade according to claim 7 wherein the at least one opposed bearing face comprises both opposed bearing faces.

15. (original) A blade according to claim 7 further comprising at least one knife edge portion which extends from the shroud portion, the knife edge portion extending across the shroud portion from one of the opposed bearing faces to the other.

16. (original) A blade according to claim 7 wherein the shroud portion extends substantially rigidly from the airfoil portion.

17. (original) A method of reducing face contact stress in a shroud contact face of a shrouded turbine blade, the method comprising the steps of:

determining a desired shroud design for a given turbine blade design, the shroud design including a nominal thickness;

determining a desired face contact stress for at least one shroud contact face of the shroud, the at least one shroud contact face having a contact portion length; and

providing a local increase in the shroud nominal thickness to thereby increase the area of the at least one shroud contact face along said contact portion length, wherein the increase in area corresponds to the desired face contact stress, and wherein the local increase is limited to a region immediately adjacent the at least one shroud contact face.